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Extended measurement of the proton spectrum with CALET on the International Space Station

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The Calorimetric Electron Telescope (CALET) is carrying out direct measurements of the main components of high energy cosmic rays up to ˜1 PeV in order to obtain systematic understanding of cosmic ray acceleration and propagation. The detector consisting of a charge detector, an imaging calorimeter, and a total absorption calorimeter, is located on the International Space Station. The thickness of the calorimeter is equivalent to 30 radiation lengths and to ˜1.3 proton interaction lengths. Data taking started in October 2015 and continues stably without any serious troubles.
We present the latest result of our proton spectrum analysis in the energy region from 50 GeV to more than 100 TeV. The energy resolution of protons is 30-40%. Compared to our previous result published on Physical Review Letters in 2022, the statistics has been increased by more than a factor of 1.3 and the energy range has been expanded.

Collaboration(s)

CALET

Author: KOBAYASHI, Kazuyoshi (Waseda university)

Co-author: MARROCCHESI, Pier Simone (Universita degli studi di Siena (IT))

Presenter: KOBAYASHI, Kazuyoshi (Waseda university)

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